Analytical Data Package Prepared For

Pacific Northwest National Lab

Radiochemical Analysis By

STL Richland STLRL

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Data Package Contains _____ Pages

Report Nbr: 34621

SDG Nbr	ORDER Nbr	CLIENT ID NUMBER	LOT Nbr	WORK ORDER	RPT DB ID	BATCH
W05099	S07-012	B1LBT8	J7A230265-1	JM8202AA	9JM82020	7079230
		B1LC67	J7A230265-2	JM8222AA	9JM82220	7079230

Dayes
4/25/12

Comments:

SEVERN TRENT **STL**

STL Richland
2800 George Washington Way
Richland, WA 99354

Tel: 509 375 3131   Fax: 509 375 5590
www.stl-inc.com

Certificate of Analysis

Pacific Northwest National Laboratories
Sigma V Building
Richland, WA 99352

March 23, 2007

Attention: Dot Stewart

SAF Number	:	S07-012
Date SDG Closed	:	January 22, 2007
Number of Samples	:	Two (2)
Sample Type	:	Water
SDG Number	:	W05099
Data Deliverable	:	45-Day / Summary

CASE NARRATIVE

I.   Introduction

On January 23, 2007, two water samples were received at STL Richland (STLR) for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Pacific Northwest National Laboratories (PGW) specific IDs:

PGW ID#	STLR ID#	MATRIX	DATE OF RECEIPT
B1LBT8	JM820	WATER	1/23/07
B1LC67	JM822	WATER	1/23/07

II.   Sample Receipt

The samples were received in good condition and no anomalies were noted during check-in.

III.   Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analyses were:

Liquid Scintillation Counting
Enriched Tritium by method RICH-RC-5024

IV.   Quality Control

The analytical results for each analysis performed includes a minimum of one laboratory control sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

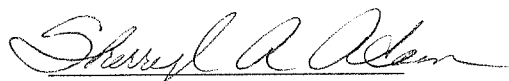QC and sample results are reported in the same units.

V.   Comments

Liquid Scintillation Counting
Enriched Tritium by method RICH-RC-5024
The first analysis gave a blank result of 14.0 pCi/L. The batch was recounted and gave results of 10.6 pCi/L. The results of the samples are 10 times greater than the blank or more. Data is accepted. Except as noted, the LCS, batch blank, samples and sample duplicate are within contractual limits.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:

Sherryl A. Adam
Project Manager

Drinking Water Method Cross References

	DRINKING WATER ASTM METHOD CROSS REFERENCES	
Referenced Method	**Isotope(s)**	**STL Richland's SOP number**
EPA 901.1	Cs-134, I-131	RICH-RC-5017
EPA 900.0	Alpha & Beta	RICH-RC-5014
EPA 903.1	Ra-226	RICH-RC-5005
EPA 904.0	Ra-228	RICH-RC-5005
EPA 905.0	Sr89/90	RICH-RC-5006
ASTM D2460	Total Radium	RICH-RC-5027
Standard Method 7500-U-C & ASTM D5174	Uranium	RICH-RC-5058
EPA 906.0	Tritium	RICH-RC-5007
NOTE:		
The Gross Alpha LCS is prepared with Am-241 (unless otherwise specified in the case narrative)		
The Gross Beta LCS is prepared with Sr/Y-90 (unless otherwise specified in the case narrative)		

Uncertainty Estimation

STL Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, $R = constants * f(x,y,z,...)$. The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/√n), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or STL Richland.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) u_c _ **Combined Uncertainty.**	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, u_c *the combined uncertainty.* The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or STL Richland "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. Lc=(1.645 * Sqrt(2*(BkgrndCnt/BkgrndCntMin)/SCntMin)) * (ConvFct/(Eff*Yld*Abn*Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC|MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. MDC = (4.65 * Sqrt((BkgrndCnt/BkgrndCntMin)/SCntMin) + 2.71/SCntMin) * (ConvFct/(Eff * Yld * Abn * Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the **Work Order** Number.
RER	The equation Replicate Error Ratio = (S-D)/[sqrt(TPUs^2 + TPUd^2)] as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by STL Richland upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Lab Sample Id:	Client Id:	Test User	Contract Nbr	SAF Nbr	Sdg Nbr:	QC Type:	Moisture/ Solids%*:	Distilled Volume	Sample On Date:		Collection Date:
9JM82020	B1LBT8		MW6-SBB-A1	S07-012	W05099						01/23/2007 13:32

Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
7079230	H-3	10028-17-8	9.18E+01	pCi/L	1.0E+01	1.9E+01		5.28E+00	100.0	TRITIUM_ELECT_L	1.50E-01	L	03/20/2007 15:27	I

Lab Sample Id:	Client Id:	Test User	Contract Nbr	SAF Nbr	Sdg Nbr:	QC Type:	Moisture/ Solids%*:	Distilled Volume	Sample On Date:		Collection Date:
9JM82220	B1LC67		MW6-SBB-A1	S07-012	W05099						01/23/2007 12:31

Batch	Analyte	CAS#	Result	Unit	CntU 2S	TotU 2S	Qual	MDA	TrcYield	Method	Alq Size	Unit	Analy Date/Time	Act
7079230	H-3	10028-17-8	5.83E+02	pCi/L	2.0E+01	1.0E+02		5.28E+00	100.0	TRITIUM_ELECT_L	1.50E-01	L	03/20/2007 18:39	I

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

Thursday, March 22, 2007

STL Richland QC Blank Report

Lab Code: STLRL

FormNbr: R   **FormatType:** FEAD   **VersionNbr:** 05   **File Name:** h:\Reportdb\edd\FeadIV\Rad\W05099.Edd, h:\Reportdb\edd\FeadIV\Rad\34621.Edd

Lab Sample Id: JNG032AB	**Sdg/Rept Nbr:** W05099 34621	**Collection Date:** 01/23/2007 13:32
Client Id: NA	**Matrix:** WATER WATER	**Sample On Date:**
Moisture/Solids%*:	**QC Type:** BLK	**Received Date:** 01/23/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
	MW6-SBB-A19981								AD	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu-al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
7079230	H-3	1.06E+01	pCi/L	7.5E+00		5.30E+00	100.0		TRITIUM_ELE	1.50E-01	03/20/2007				D
BLK	10028-17-8			6.6E+00						L	13:28				

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

Thursday, March 22, 2007 | **STL Richland QC Control Sample Report** | **Lab Code:** STLRL

FormNbr: R   **FormatType:** FEAD   **VersionNbr:** 05   **File Name:** h:\Reportdb\edd\FeadIV\Rad\W05099.Edd, h:\Reportdb\edd\FeadIV\Rad\34621.Edd

Lab Sample Id:	JNG032CS		**Sdg/Rept Nbr:**	W05099	34621	**Collection Date:**	01/23/2007 13:32
Client Id:	NA		**Matrix:**	WATER	WATER	**Sample On Date:**	
Moisture/Solids%*:			**QC Type:**	BS		**Received Date:**	01/23/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
	MW6-SBB-A19981								AE	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu-al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
7079230	H-3	3.82E+02	pCi/L	6.8E+01		5.35E+00	100.0	4.54E+02	TRITIUM_ELE	1.5004E-01	03/20/2007			70	D
BS	10028-17-8			1.6E+01				84.2		L	14:46			130	

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

Thursday, March 22, 2007 **STL Richland QC Duplicate Report** **Lab Code:** STLRL

FormNbr: R **FormatType:** FEAD **VersionNbr:** 05 **File Name:** h:\Reportdb\edd\FeadIV\Rad\W05099.Edd, h:\Reportdb\edd\FeadIV\Rad\34621.Edd

Lab Sample Id:	JM8202CR	**Sdg/Rept Nbr:**	W05099	34621	**Collection Date:**	01/23/2007 13:32
Client Id:	B1LBT8	**Matrix:**	WATER	WATER	**Sample On Date:**	
Moisture/Solids%*:		**QC Type:**	DUP		**Received Date:**	01/23/2007

SAF Nbr	Contract Nbr	Test User	Case Nbr	SAS Nbr	Suffix	Decant	Distilled Volume	File Id	FSuffix	RTyp
S07-012	MW6-SBB-A19981								AC	H

Batch # / Qc Type	Analyt/ CAS#	Result/ Orig Rst	Unit	Tot/Cnt Uncert 2S	Qu-al	MDC	Tracer Yield	Spk Conc/ %Rec	Analy Method	Aliq Size/	Date/Time Analyzed	RPD/ UCL	RER/ UCL	LCS LCL/UCL	R Typ
7079230	H-3	9.75E+01	pCi/L	2.0E+01		5.29E+00	100.0		TRITIUM_ELE	1.50E-01	03/20/2007	6.0	0.4		D
DUP	10028-17-8	9.18E+01		8.7E+00						L	17:21	20.0	3		

STL Richland

rptFeadRadEdd v3.68

U Qual - Analyzed for, but the result is less than the Mdc or gamma scan did not identify the nuclide.
J Qual - No U qualifier has been assigned and the result is below the Reporting Limit (CRDL).
B Qual- Analyte was found in the associated laboratory blank above the MDC.

3

Lot No., Due Date:	J7A230265; 03/09/2007
Client, Site:	384868; PGW 615HANFORD HANFORD
QC Batch No., Method Test: 7079230; RH3EE	H3EE by LSC
SDG, Matrix:	W05099; WATER

1.0 COC
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions? — Yes ✓ No N/A

2.0 QC Batch
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet? — Yes ✓ No N/A

2.2 Are the QC appropriate for the analysis included in the batch? — Yes ✓ No N/A

2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc? — Yes ✓ No N/A

2.4 Does the Worksheets include a Tracer Vial label for each sample? — Yes No N/A ✓

3.0 QC & Samples
3.1 Is the blank results, yield, and MDA within contract limits? — Yes No ✓ N/A

3.2 Is the LCS result, yield, and MDA within contract limits? — Yes ✓ No N/A

3.3 Are the MS/MSD results, yields, and MDA within contract limits? — Yes No N/A ✓

3.4 Are the duplicate result, yields, and MDAs within contract limits? — Yes ✓ No N/A

3.5 Are the sample yields and MDAs within contract limits? — Yes ✓ No N/A

4.0 Raw Data
4.1 Were results calculated in the correct units? — Yes ✓ No N/A

4.2 Were analysis volumes entered correctly? — Yes ✓ No N/A

4.3 Were Yields entered correctly? — Yes No N/A ✓

4.4 Were spectra reviewed/meet contractual requirements? — Yes No N/A ✓

4.5 Were raw counts reviewed for anomalies? — Yes ✓ No N/A

5.0 Other
5.1 Are all nonconformances included and noted? — Yes ✓ No N/A

5.2 Are all required forms filled out? — Yes ✓ No N/A

5.3 Was the correct methodology used? — Yes ✓ No N/A

5.4 Was transcription checked? — Yes ✓ No N/A

5.5 Were all calculations checked at a minimum frequency? — Yes ✓ No N/A

5.6 Are worksheet entries complete and correct? — Yes ✓ No N/A

6.0 Comments on any No response:
See NCM. *10·09601*

First Level Review *Pam Andersen* Date *3-22-07*

SEVERN TRENT **STL**

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

QC Batch Number: _7079230_
_W05099_

Review Item	Yes (√)	No (√)	N/A (√)
A. Sample Analysis			
1. Are the sample yields within acceptance criteria?	/		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	/		
3. Are the correct isotopes reported?	/		
B. QC Samples			
1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?		/	
2. Does the blank result meet the Contract criteria?	/		
3. Is the blank result < the Contract Detection Limit?	/		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			/
5. Is the LCS recovery with contract acceptance criteria?	/		
7. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	/		
8. Do the MS/MSD results and yields meet acceptance criteria?			/
9. Do the duplicate sample results and yields meet acceptance criteria?	/		
C. Other			
1. Are all Nonconformances included and noted?	/		
2. Are all required forms filled out?	/		
3. Was the correct methodology used?	/		
4. Was transcription checked?	/		
5. Were all calculations checked at a minimum frequency?	/		
6. Were units checked?	/		

Comments on any "No" response: _See NCM_

Second Level Review _Sheryl A Allen_   Date _1-22-07_

Clouseau
Nonconformance Memo

NCM #: **10-09607**
NCM Initiated By: Pam Anderson
Date Opened: 03/22/2007
Date Closed:

Classification: **Anomaly**
Status: **GLREVIEW**
Production Area: Environmental - Prep
Tests: H3EE by LSC
Lot #'s (Sample #'s): J7A230265 (1,2), J7A260000 (394),
QC Batches: 7079230

Nonconformance: Blank result above Contract Limit
Subcategory: Unknown

Problem Description / Root Cause

Name	Date	Description
Pam Anderson	03/22/2007	The blank on this tritium enrichment in water is high. The first count has a result of 14.0 pCi/L. The batch was recounted. The recount result is 10.6 pCi/L. The recount data will be accepted. The results of the samples are 10 times greater that the blank or more.

Corrective Action

Name	Date	Corrective Action
Pam Anderson	03/22/2007	The procedure is being watched closely.

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note

Response	Response Note

Quality Assurance Verification

Verified By	Due Date	Status	Notes
		This section not yet completed by QA.	

Approval History

Date Approved	Approved By	Position

PNNL. J1A230265
W05099
Due 03-09-07

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Collector	Contact/Requester	Telephone No.	MSIN	FAX
Fluor Hanford F. M. HALL	Dot Stewart	509-376-5056		

SAF No.	Sampling Origin	Purchase Order/Charge Code
S07-012	Hanford Site	

Project Title		Ice Chest No.	Temp.
SURV, DECEMBER 2006	HNF -N- 506 3	OWO -06-8	

Shipped To (Lab)	Method of Shipment	Bill of Lading/Air Bill No.
Severn Trent Incorporated, Richland	Govt. Vehicle	

Protocol	Priority: 45 Days	Offsite Property No.
SURV		

POSSIBLE SAMPLE HAZARDS/REMARKS
** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL INSTRUCTIONS   Hold Time   Total Activity Exemption: Yes ☑ No ☐
All Labs except WSCF: Batch all PNNL samples submitted under A, G, I, S, and W 07 SAFs into one SDG, not to exceed SDG closure of 14 days.
WSCF: Batch all PNNL GW samples submitted into one SDG, daily closure.

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis		Preservative
B1LBT8		W	1-23-07	1332	1x20-mL P	Activity Scan	None	
B1LBT8		W	↓	↓	3x1000-mL P	TRITIUM_ELECT_LSC_LL: H-3 (1)	None	
						JM820		

Relinquished By	Print	Sign	Date/Time 1400	Received By	Print	Sign	Date/Time 1400	Matrix *	
Fluor Hanford F. M. HALL			JAN 2 3 2007	Eric Darby	ER.c Darby		JAN 2 3 2007	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air	DS = Drum Solid DL = Drum Liqui T = Tissue WI = Wine L = Liquid V = Vegetation X = Other
Relinquished By			Date/Time	Received By			Date/Time		
Relinquished By			Date/Time	Received By			Date/Time		
Relinquished By			Date/Time	Received By			Date/Time		

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

PNNL J7A230265
W05099
Due 03·09·07

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
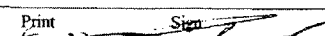
C.O.C. #
S07-012-538

Page 1 of 1

Collector Fluor Hanford F. M. HALL	**Contact/Requester** Dot Stewart	**Telephone No.** 509-376-5056 **MSIN** **FAX**
SAF No. S07-012	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title SURV, DECEMBER 2006	HNF~N~506 3	**Ice Chest No.** CWO-06-8 **Temp.**
Shipped To (Lab) Severn Trent Incorporated, Richland	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol SURV	**Priority:** 45 Days	**Offsite Property No.**

POSSIBLE SAMPLE HAZARDS/REMARKS
** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL INSTRUCTIONS   Hold Time   Total Activity Exemption: Yes ✔ No ☐
All Labs except WSCF: Batch all PNNL samples submitted under A, G, I, S, and W 07 SAFs into one SDG, not to exceed SDG closure of 14 days.
WSCF: Batch all PNNL GW samples submitted into one SDG, daily closure.

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis		Preservative
B1LC67		W	1-23-07	1231	1x20-mL P	Activity Scan	None	
B1LC67		W	⟋	⟋	3x1000-mL P	TRITIUM_ELECT_LSC_LL: H-3 (1)	None	
						JM822		

Relinquished By Fluor Hanford F M HALL	Print	Sign	Date/Time 1400 JAN 2 3 2007	Received By	Print Ene Darby	Sign Eric Darby 1400	Date/Time JAN 2 3 2007	Matrix *
Relinquished By			Date/Time	Received By			Date/Time	
Relinquished By			Date/Time	Received By			Date/Time	

Matrix *
S = Soil   DS = Drum Solid
SE = Sediment   DL = Drum Liquid
SO = Solid   T = Tissue
SL = Sludge   WI = Wine
W = Water   L = Liquid
O = Oil   V = Vegetation
A = Air   X = Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

STL

Sample Check-in List

Date/Time Received: 1/23/07 1400

Client: PNL   SDG #: W05099 NA[ ] SAF #: S07-012 NA

Work Order Number: J7A230265   Chain of Custody #: S07-012, 538, 588

Shipping Container ID: _____   Air Bill # _____

1. Custody Seals on shipping container intact?   NA[ ] Yes[✓] No[ ]

2. Custody Seals dated and signed?   NA[ ] Yes[✓] No[ ]

3. Chain of Custody record present?   Yes[✓] No[ ]

4. Cooler temperature: _____ NA[✓]   5 Vermiculite/packing materials is NA[✓] Wet[ ] Dry[ ]

6. Number of samples in shipping container: 2

7. Sample holding times exceeded?   NA[✓] Yes[ ] No[ ]

8. Samples have:
   _____tape
   _____custody seals   _____hazard labels
                               [✓]appropriate samples labels

9. Samples are:
   _____in good condition
   _____broken   _____leaking
                        _____have air bubbles
                        (Only for samples requiring head space)

10. Sample pH taken?   NA[ ]   pH<2[ ]   pH>2[✓]   pH>9[ ]

11. Sample Location, Sample Collector Listed? *
    *For documentation only. No corrective action needed.   Yes[✓] No[ ]

12. Were any anomalies identified in sample receipt?   Yes[ ] No[✓]

13. Description of anomalies (include sample numbers): _____

Sample Custodian: _Eric Danby_   Date: 1/23/07 1400

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on _____ by _____ Person contacted _____

[ ] No action necessary; process as is.

Project Manager _____   Date _____

LS-022, 9/03, Rev. 5

Sample Preparation/Analysis

AS H-3 Prp/SepRC5024
U3 Enriched Tritium by Liquid Scint
5I CLIENT: HANFORD

384868, Pacific Northwest National Laboratory ,
Pacific Northwest National Lab

AnalyDueDate: 03/09/2007

Balance Id:

Pipet #: _____

Sep1 DT/Tm Tech:

Batch: 7079230   WATER   pCi/L
SEQ Batch, Test: None   All Tests: 7026394 ASU3, 7079230 ASU3,

PM, Quote: SA , 57671

Sep2 DT/Tm Tech:

Prep Tech:

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 JM820-2-AA J7A230265-1-SAMP 01/23/2007 13:32		AmtRec: 20ML,3XLP	#Containers: 4			Scr:	Alpha: 8.23E-05 uCi/Sa	Beta: -7.17E-06 uCi/Sa
2 JM820-2-AC-X J7A230265-1-DUP 01/23/2007 13:32		AmtRec: 20ML,3XLP	#Containers: 4			Scr:	Alpha: 8.23E-05 uCi/Sa	Beta: -7.17E-06 uCi/Sa
3 JM822-2-AA J7A230265-2-SAMP 01/23/2007 12:31		AmtRec: 20ML,3XLP	#Containers: 4			Scr:	Alpha: -3.81E-04 uCi/Sa	Beta: 6.64E-04 uCi/Sa
4 JNG03-2-AA-B J7A260000-394-BLK 01/23/2007 13:32		AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:
5 JNG03-2-AC-C J7A260000-394-LCS 01/23/2007 13:32		AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:
6 JNG03-2-AD-B J7A260000-394-BLK 01/23/2007 13:32		AmtRec:	#Containers: 1			Scr:	Alpha:	Beta:

ICOC Fraction Transfer/Status Report

ByDate: 3/21/2006, 3/26/2007, Batch: '7079230', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus		Accepting		Comments
7079230						
AC	CalcC	BlackCL		3/20/2007 10:23:05		
SC		andersonp	IsBatched	3/20/2007 10:09:52 AM		ICOC_RADCALC v4.8.26
SC		BlackCL	InCnt1	3/20/2007 10:23:05 AM		RICH-RD-0001 REVISION 3
SC		BlackCL	CalcC	3/21/2007 7:09:25 AM		RICH-RD-0001 REVISION 3
AC		BlackCL		3/21/2007 7:09:25		

AC: Accepting Entry; SC: Status Change

STL Richland

Richland Wa.

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Grp Rec Cnt: 2

ICOCFractions v4.8.26